JOINT STAFF
FY 2004/FY 2005 Biennial Budget Estimates
Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-3, Project Cost Analysis

Exhibit R-3, Project Cost Analysis									Date: February 2003			
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide, Joint Staff			PROGRAM ELEMENT: 0303149J						PROJECT NAME: C4I for the warrior -- NETWARS			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Definition & Proof of Concept	CPFF	MITRE	.430	0		0				TBD	TBD	
Software Development	CPFF		3.074							TBD	TBD	
Program Management	CPFF		1.966	.200	TBD	0				TBD	TBD	
COTS Hardware and Software	CPFF		.395							TBD	TBD	
Toolkit Functionality	Fixed Price	OPNET Technologies	1.139	1.470	Dec 00	1.600	Jan 03					
Standardization/Interoperability	CPFF	Various								TBD	TBD	
Communication Model Development	CPFF	Various	.700	.700		1.200						
IER Refinement	CPFF	Various	.500	.700								
Subtotal Product Development			8.204	2.870		2.800	Jan 03			TBD	TBD	
Communications Developmental Studies	CPFF		1.797							TBD	TBD	
Communications Burden Assessment Studies	CPFF	Various	1.746	1.787	TBD	1.400	Jan 03					
Configuration Mgmt	CPFF		.442	.100	TBD					TBD	TBD	
Maintenance	CPFF		.177	.100	TBD	.200	Jan 03					
Training/Development Support	CPFF					.381	Jan 03					
Subtotal Support Cost			4.162	2.187		1.981						

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Exhibit R-3, Project Cost Analysis

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APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense Wide, Joint Staff			PROGRAM ELEMENT: 0303149J						PROJECT NAME: C4I for the Warrior -- NETWARS			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	FY04 Cost	FY04 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Verification & Validation	CPFF	Various	.900	.200	TBD		TBD			TBD	TBD	
Subtotal T&E			.900	.200						TBD	TBD	
Contractor (FFRDC) Eng Support	CPFF	Various	1.299	.500	TBD	.220	TBD			TBD	TBD	
Contractor Eng and Technical Support	CPFF	Various	.952			.410	TBD	.300	TBD			
Independent Cost Estimate (ICE) (FFRDC)		MITRE	.100							TBD	TBD	
NETWARS Standardization		Various	.250			.650	Jan 03					
Congressional non programmatic rescission			(0.016)									
Subtotal Management			2.515	.500		1.280						
Total Cost			15.781	5.757		6.061		.300				

Remarks
Award to SRI, Inc., under sole-source contract; awarded Feb 99.
Award to OPNET Technologies under sole source contract, awarded Aug 00.
NETWARS transferring to DISA control during FY 2003.

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Exhibit R-3, Project Cost Analysis

Exhibit R-3, Project Cost Analysis									Date: February 2003			
APPROPRIATION/BUDGET ACTIVITY 0400/BA 7			PROGRAM ELEMENT 0303149J						PROJECT NAME C4IFTW (JWID)			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY02 Cost	FY 02 Award Date	FY03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Verification & Validation												
Subtotal T&E												
Contract Engineering and Technical Support		Various	.404	1.530	TBD	1.532	TBD	1.510	TBD	TBD	TBD	
Subtotal Management			.404	1.530		1.532		1.510		TBD	TBD	
Total Cost			.404	1.530		1.532		1.510		TBD	TBD	

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Exhibit R-3, Project Cost Analysis

Exhibit R-3, Project Cost Analysis												Date: February 2003
APPROPRIATION/BUDGET ACTIVITY 0400/BA7			PROGRAM ELEMENT 0303149J						PROJECT NAME AND NUMBER C4IFTW – SATCOM Ops Analysis and Integration Tool			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY02 Cost	FY 02 Award Date	FY03 Cost	FY 03 Award Date	FY04 Cost	FY 04 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Definition & Proof of Concept			.917							TBD	TBD	
Software Prototype Development	CPFF	SAIC, Aerospace				.953	TBD	1.101	TBD	TBD	TBD	
Program Management	CPFF	SAIC	.200	1.705		.320	TBD	.330	TBD	TBD	TBD	
COTS Hardware and Software	CPFF	SAIC	.140	.300	TBD	.0		.0		TBD	TBD	
Subtotal			1.257	2.005		1.273		1.431		TBD	TBD	
Verification & Validation		DISA	.100	.100		.100		.100		TBD	TBD	
Subtotal T&E			.100	.100		.100		.100		TBD	TBD	
Independent Cost Estimate (ICE) (FFRDC)	CPFF	Aerospace, AF Cost Analysis Agency	.150					000		TBD	TBD	
Contract Engineering and Technical Support	CPFF	SAIC	.200	.361	TBD	.250	TBD	.362	TBD	TBD	TBD	
Contract Eng. & Tech. Support (FFRDC)	CPFF	Aerospace	.230	.330	TBD	.250	TBD	.345	TBD			
Configuration Management	CPFF					.150	TBD	.150	TBD			
Congressional non programmatic rescission												
Subtotal Management			.580	.691		.500		.857		TBD	TBD	
Total Cost			1.937	2.796		1.873		2.388		TBD	TBD	
Remarks: All awards to SAIC under competitively won umbrella support contract, awarded Jul 97.												

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2, RDT&E Budget Item Justification									Date: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide, Joint Staff/BA 7				R-1 ITEM NOMENCLATURE 0303149J C4I for the Warrior						
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost
Total PE Cost	10.083	9.466	4.198	4.188	4.260	4.264	4.327	4.361	TBD	TBD
Network Warfare Simulation (NETWARS)	5.757	6.061	0.300	0.300	0.300	0.300	0.331	0.331	TBD	TBD
Joint Warrior Interoperability Demonstrations (JWID)	1.530	1.532	1.510	1.546	1.542	1.555	1.553	1.551	TBD	TBD
Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) tool	2.796	1.873	2.388	2.342	2.418	2.409	2.443	2.479	TBD	TBD

A. Mission Description and Budget Item Justification: The C4IFTW vision has evolved into the Department's Global Information Grid (GIG) as a means to achieve information superiority. This program provides focus and visibility into resolving joint C4 capacity and interoperability issues and provides a mechanism for achieving information superiority as envisioned by Joint Vision (JV) 2020. Currently, the overall GIG efforts stress interoperability, identification of transmission capacity, and leveraging of the rapid pace of C4 technology advancements. As the GIG evolves and matures, it will spawn new approaches to providing the joint warfighter with C4 capabilities to achieve information superiority. This program element consists of two Joint Staff programs: (1) Network Warfare Simulation (NETWARS), (2) Joint Warrior Interoperability Demonstrations (JWID), and (3) Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) tool. Starting in FY 2003, NETWARS was turned over to DISA; but, minimal NETWARS oversight support will continue to be maintained at the Joint Staff. JWID is the only CJCS-sponsored demonstration of new and emerging, low-cost, low-risk C4ISR technologies and interoperability solutions, impartially presented to the Combatant Commands and Military Services in an operational environment. Proposals are selected to fulfill identified warfighter deficiencies and are designed to provide the opportunity to experiment with new and emerging capabilities, assess their value, and recommend them for implementation where appropriate. JWID provides a structured process where new C4ISR capabilities are rigorously vetted, evaluated, and assessed by the warfighter. JWID is an integral component of the JV 2020 conceptual template for future joint warfighting. The current focus of the Satellite Communications (SATCOM) operations analysis and integration effort is the development of the Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) Tool Set. J-SCAPE is required to provide decision-makers with the means to focus the ongoing modernization of SATCOM assets to transform current systems and choose the best architectural alternative for the 21st century SATCOM infrastructure. The J-SCAPE tool set is also required to support planning and evaluation necessary to maximize all four of the operational concepts of JV 2020--dominant maneuver, precision engagement, focused logistics, and full dimensional protection. Currently, there is no effective, efficient, capability to plan and evaluate the ability of current and future SATCOM architectures to meet the Combatant Commands' requirements. When fully operational, the J-SCAPE tool set will be used by the Joint Staff,

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2, RDT&E Budget Item Justification				Date: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide, Joint Staff/BA 7	R-1 ITEM NOMENCLATURE 0303149J C4I for the Warrior			

Combatant Commands, their components, other joint organizations, satellite systems program offices, and Earth terminal program offices. The Services will use this tool set to assess the adequacy of SATCOM systems to support their assigned missions, evaluate operational plans, define SATCOM-related operational requirements, and provide operational input to the acquisition process.

B. Program Change Summary:

	FY 2002	FY 2003	FY 2004	FY 2005
FY 2003 President's Budget	10.083	10.190	10.503	10.218
Total Adjustments				
a. NETWARS transfer to DISA			(6.138)	(6.361)
b. Internal Reprogramming		(0.724)	(0.167)	0.331
FY 2004 Budget Estimate	10.083	9.466	4.198	4.188

C. Other Program Funding Summary: N/A.

D. Acquisition Strategy: Exhibit R2a attached.

E. Schedule Profile: Exhibit R2a attached.

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Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification									Date: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7		PROGRAM ELEMENT 0303149J		PROJECT NAME AND NUMBER C4I for the Warrior – NETWARS						
Cost ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost
NETWARS	5.757	6.061	0.300	0.300	0.300	0.300	0.331	0.331	TBD	TBD
RDT&E Articles Qty	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. Mission Description and Budget Item Justification: The C4I for the Warrior (C4IFTW) vision has evolved into the Department's Global Information Grid (GIG) as a means to achieve information superiority. In FY 03, Defense Information Services Agency (DISA) assumed the leadership role in NETWARS program. The funding will migrate to DISA during FY03, with the exception of one contracted position. NETWARS will assess the effects of full operational combat traffic loading on current and future communications systems and networks in a joint task force major theater of war scenario; conduct quick-turn communications planning for small regional conflicts or peacekeeping scenarios; and evaluate new communication systems and technologies. It will be evolved through prototyping, development, and rigorous verification and validation of a toolkit, and its required input information. The objective is to use the simulation to investigate high-priority C4ISR technologies in the context of realistic warfighter scenarios. NETWARS will start with small joint Service scenarios, evolve to include complete joint task force (JTF) scenarios, and, ultimately, to a major theater war (MTW) with the thousands of communications nodes in a JTF each individually represented in detail. Ultimately, the Combatant Commands will have a tool to assist them in conducting network management scenarios to optimize and ensure full and efficient C4 systems.

FY 2002	FY 2003	FY 2004	FY 2005	Description
1.470	1.600			Software Development: Tool Kit Functionality
.700	1.200			Software Development: Comm Model Development
.700				Information Exchange Requirements
.000	0.550			Standardization/Interoperability (JWARS, JNMS, etc.)
1.787	1.400			Comm Burden Assessment Studies
.500	0.520	0.300	0.300	Contract Engineer, Training, and Technical Support
.200				Verification and Validation
.200				Program Management
.100				Configuration Management
.000	0.591			Training and Development Support
.100	0.200			Maintenance (licenses, etc.)
5.757	6.061	0.300	0.300	Total

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification		Date: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	PROGRAM ELEMENT 0303149J	PROJECT NAME AND NUMBER C4I for the Warrior – NETWARS

B. Accomplishments/Planned Program:

FY 2002 Accomplishments. The program completed two major software releases (versions 2.5 and 3.0) during FY02, and focused on requirements development from user training and feedback conducted at USFK, USPACOM, USSOUTHCOM, and USJFCOM. The program completed the Southwest Asia Burden Analysis Study/validation study using the Operation ENDURING FREEDOM scenario, assessing the impact of Common Operational Picture (COP), Information, Imagery and Intelligence (I3), Theater Battle Management Core System (TBMCS), and Theater Ballistic Missile Defense (TBMD) on the SIPRNET. The program office is providing support to Joint Forces Exercise (JTFEX) ROVING SANDS 03, providing NETWARS, as the planning tool used by the U.S. Army Forces Command (FORSCOM) J6. The program is also involved with two studies, the Army Interim Brigade Combat Team (IBCT) and the Navy communication device model conversion study. A Memorandum of Agreement was signed with Joint Network Management System (JNMS) incorporating NETWARS as the planning tool for the JNMS architecture.

FY 2003 Planned Activities. A contract was competitively awarded to OPNET January 6, 2003 and it will be administered by DISA. During FY 2003 NETWARS will achieve DII COE compliance, which will provide greater interoperability among systems. The program is expected to have two software releases during FY 2003. NETWARS is planning to stay involved with several C4 Systems Studies in the upcoming year. The program is working closely with JNMS to work through interoperability, model development and licensing matters. The program will also conduct an OT&E with Joint Interoperability Test Command (JITC) at USSOUTHCOM. The USSOUTHCOM planners and components will perform a Capability Exercise using the NETWARS tool as the key-planning element in the exercise.

FY 2004 Planned Program. Starting in FY 2004 funding and overall control of the NETWARS program shifts to DISA. Funds remaining on the Joint Staff will be used for contract support to interface with DISA, and to ensure integrations of NETWARS functionality with other Joint programs, such as JWARS and JNMS. Also, this support will identify and satisfy Joint Warfighter requirements for future NETWARS development.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: *FY 1997:* A Mission Needs Statement was developed and signed. Subsequent to initiating model development, an extensive Program Development Plan was developed and approved by the Director, Command, Control, Communications, and Computer (C4) Systems Directorate (J-6). A proof-of-concept effort validated the concept and determined that NETWARS would support the requirements. *FY 1998:* A Configuration Management Plan, Software Development and Integration Plan, and Systems Architecture Design Plan were developed. Initiated software and communications modules development and integration. NETWARS Toolkit Version 1.1 functional requirements were derived, documented, and formalized. JWARS initial requirements for C4 were evaluated relative to expected analytical outputs from NETWARS. *FY 1999:* Based on further

Exhibit R-2a, RDT&E Project Justification		Date: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	PROGRAM ELEMENT 0303149J	PROJECT NAME AND NUMBER C4I for the Warrior – NETWARS

refinement and analysis of requirements, initiated a transition to lower-risk developmental software and toward building the NETWARS Toolkit Advanced Development, Interim Version. Concurrent communications studies of accepted Joint Task Force (JTF) scenarios will help to refine requirements, the development of data, and the development of models that represent the C4 processors, systems, and networks used in a JTF that will become part of the NETWARS data and model repository. Continued development of NETWARS standards. *FY 2000:* Interim Version 2.0 provided to Combatant Commands/Services/agency (C/S/A) users, including a training course, in November 1999. Continued development of NETWARS Toolkit Advanced Development, Version 2.0, associated documentation and completion of a Southwest Asia JTF-based communication burden assessment. *FY2001:* Further expansion of toolkit functionality (Versions 2.2 and 2.5) involved development of needed specific communication system models and information exchange requirements data; a series of developmental studies for Southwest Asia JTF scenarios (of up to 20,000 communication nodes); and gathering requirements from model users. Codified program requirements for subsequent toolkit conversion were captured subsequent to extensive use of NETWARS by the Combatant Commands, Services, and agencies. Continued development of input data in conjunction with communications studies conducted in parallel with model development. *FY2002*: Emphasis will be on further expansion of toolkit functionality in response to requirements identified by Combatant Commands, Services and agencies; several studies to include a Northeast Asia scenario, the Army's Future Combat System (FCS) and the initial phase of a multi-year logistics communications modeling and simulation effort by OUSD (AT&L); release of several contingency planning tools for use by the Combatant Commands; and the award of a competitively bid contract. Additionally, with the recent award of the Joint Network Management System contract (JNMS), it is logical that the NETWARS program will serve as one of the Government Off The Shelf (GOTS) software options incorporated by JNMS. As such, the potential exists for some associated integration costs as the JNMS technical design matures. NETWARS program control and funding will begin to transition to DISA starting in FY 2003.

E. Schedule Profile and Performance Measures: The first-Phase review was 23 September 1997, when the Phase I proof-of-concept results were presented to the J-6 and Service/agency representatives. The mid-Phase II In-Progress Review (IPR) to the J-6 and the Service/agency representatives was held on 19 December 1997. Block I formally began in March 1997 and involved researching and writing a detailed NETWARS development plan, followed by conducting a proof-of-concept prototype demonstration of a small JTF scenario of 100 to 200 communications nodes. Block II began in mid-September 1997, and was completed in October 1998. In Block II, J6I continued the design and building to complete version 1.1 of the front-end toolset database and completed a study of a small JTF of up to 5000 nodes and a JTF scenario of up to 10,000 nodes. The scenario selected was the Synthetic Theater of War (STOW)/UNITED ENDEAVOR 98-1 scenario, which involved a JTF defense of Kuwait. Block III, Version 2.0, which began in April 1999, involved advanced development, testing, and building of the interim Version 2.0 front-end toolkit and database for NETWARS, plus completing a Joint Task Force scenario of up to 5000 communications nodes. Reviews of Version 2.0 were held in March 2000, with additional upgrading scheduled for August - November 2000. A refined 5000-node communication burden assessment was completed in December 2000. Joint, COMBATANT COMMANDS, Service, and agency representatives will review that assessment for accuracy and completeness. By integrating input from these users, NETWARS will enhance the abilities of the Combatant Commands, Services, and agencies to meet the goals stated in JV 2010, JV 2020, and the GIG

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification		Date: February 2003
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Capstone Requirements Document (CRD). FY 2001 Accomplishments: Major milestones reached include three software releases (Versions 2.1, 2.2 and 2.5); execution of the software design MOA between J-6 and DISA, publication of coordinating TEMP and ORD drafts, initiation of a Southwest Asia JTF burden analysis study with CENTCOM, and implementation of a spiral acquisition process, to include an evolutionary phased implementation plan (EPIP) and establishment of four integrated process teams (requirements, studies, configuration management and standards).

	FY 2002				FY 2003				FY2004				FY 2005			
(Fiscal Qtr)	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award to OPNET Technologies																
IOC							X									
FOC (FY 2009/4th Qtr)																

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification		Date: February 2003
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Exhibit R-2a, RDT&E Project Justification		Date: February 2003
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Exhibit R-2a, RDT&E Project Justification									Date: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7		PROGRAM ELEMENT 0303149J		PROJECT NAME AND NUMBER C4I for the Warrior - Joint Warrior Interoperability Demonstration (JWID)						
Cost ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost
JWID	1.530	1.532	1.510	1.546	1.542	1.555	1.553	1.551	TBD	TBD
RDT&E Articles Qty	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. Mission Description and Budget Item Justification: The C4IFTW vision has evolved into the Department's Global Information Grid (GIG) as a means to achieve information superiority. JWID provides focus and visibility into resolving coalition C4 interoperability issues and provides organizing principles, techniques, and procedures for achieving information superiority as envisioned by JV 2020. The GIG stresses interoperability and JWID leverages the rapid pace of C4 technology advancements. JWID is the CJCS-sponsored annual event that enables the US combatant commands and international community to investigate command, control, communications, and computer (C4) solutions that focus on relevant and timely core objectives for enhancing coalition interoperability. JWID is conducted in a simulated operational environment to provide context for warfighter evaluation of those solutions. Coalition Interoperability Trials (CITs) are the activities used to address the core coalition interoperability objectives selected each year. CITs strive to benchmark successes that can immediately support and enable the next multinational operation. The execution of the trails is dependent upon the annual objectives, the host combatant command's priorities, and the desires of the participating nations. JWID is an integral component of the JV 2020 conceptual template for future joint and coalition warfighting. Interoperability and information superiority are key goals of the Chairman of the Joint Chiefs of Staff.

FY 2002	FY 2003	FY2004	FY2005	Description
1.530	1.532	1.510	1.546	Contract Engineering and Technical Support
1.530	1.532	1.510	1.546	Total

B. Accomplishments/Planned Program: JWID 2002 success surpassed JWID 01. The JWID worldwide coalition, wide area network supported 12 nations and 26-worldwide sites with 100% backbone and 99.8% total circuit availability. A total of 141 CITs and industry demonstrations were executed and assessed in the context of a Coalition Task Force lead by U.S. Pacific Command (USPACOM). Of significant note was the inclusion of Pacific Rim nations (Japan, South Korea, Thailand, Singapore, Malaysia, India, and the Philippines) as observers at Camp Smith, HI (USPACOM).

FY 2003 Planned Activities: JWID 2003 will operate under a revised CJCS Instruction to investigate C4 solutions that focus on relevant and timely core objectives for enhancing coalition interoperability. JWID will conduct CITs of applicable hardware; software and/or procedural solutions that strive to benchmark successes that can immediately support and enable the next multinational operation. Four Pacific Rim nations will participate on the coalition wide area network for the first time as full members of the JWID created Coalition Task Force.

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Exhibit R-2, RDT&E Budget Item Justification

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APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	PROGRAM ELEMENT 0303149J	PROJECT NAME AND NUMBER C4I for the Warrior - Joint Warrior Interoperability Demonstration (JWID)

FY 2004 Planned Activities: JWID 2004 host Combatant Command will be USNORTHCOM. 2004 activity will center on conducting CITs of hardware, software, and procedures for emerging interagency interoperability issues and problems with other US Government departments as well as continuing CITs with multiple allied nations. With the goal of identifying benchmark successes that can immediately support interagency operations, as well as multinational operations.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	To Complete	Total Cost
O&M Defense-Wide	0.754	0.743	0.722	0.694	TBD	TBD
Procurement Defense-Wide	0.260	0.264	0.263	0.269	TBD	TBD

D. Acquisition Strategy: N/A

E. Schedule Profile. The RDT&E will be spent throughout various quarters across the Fiscal Years.

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Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification									Date: February 2003	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7		PROGRAM ELEMENT 0303149J		PROJECT NAME AND NUMBER C4IFTW (SATCOM Ops Analysis and Integration Tools)						
Cost ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Cost
SATCOM Ops Analysis and Integration Tools	2.796	1.873	2.388	2.342	2.418	2.409	2.443	2.479	TBD	TBD
RDT&E Articles Qty	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

A. Mission Description and Budget Item Justification: The current focus of the Satellite Communications (SATCOM) operations analysis and integration effort is the development of the Joint Satellite Communications Architecture Planning and Evaluation (J-SCAPE) Tool Set. J-SCAPE is required to provide decision-makers with the means to focus the ongoing modernization of SATCOM assets to transform current systems and choose the best architectural alternative for the 21st century SATCOM infrastructure. The J-SCAPE tool set is also required to support the planning and evaluation necessary to maximize all four of the operational concepts of JV 2020-dominant maneuver, precision engagement, focused logistics, and full dimensional protection. Currently, there is no effective, efficient capability to plan and evaluate the ability of current and future SATCOM architectures to meet the Combatant Commands' requirements. The J-SCAPE tool set mission recognizes the importance of information superiority to each of these operational concepts. Specifically, the J-SCAPE toolset will provide the capability to efficiently and accurately evaluate a set of communication requirements -- captured in the form of a scenario -- against a set of SATCOM resources. It will quantify supportability in terms of connectivity and capacity, emphasizing SATCOM parameters such as link budgets, including fading because of rain and scintillation, bit error rates, satellite processing, and crosslinks. Other measures of effectiveness include link availability, delay, resistance to jamming, and intercept or signals exploitation. When fully operational, the J-SCAPE toolset will be used by the Joint Staff, Combatant Commands, their components, other joint organizations, satellite systems program offices, and earth terminal program offices. The Services will use this tool set to assess the adequacy of SATCOM systems to support their assigned missions, evaluate operational plans, define SATCOM-related operational requirements, and provide operational input to the acquisition process. J-SCAPE is presently in early concept exploration, including documentation of mission need, development and documentation of operational and functional requirements, CONOPS, and program management plan. Specifically, this year's accomplishments include the development of the Research Analysis Report, CONOPS, Functional Requirements Document, Initial - High Level Design, and Initial Software Development Plan.

FY 2002	FY 2003	FY 2004	FY 2005	Description
1.705	0.953	1.101	1.050	Software Development/Software Functionality
0.300	0.320	0.330	0.340	Program Management
0.100	0.100	0.100	0.100	Verification and Validation
0.000	0.000	0.150	0.150	Configuration Management
0.361	0.250	0.362	0.350	Contract Engineering & Technical Support (non-FFRDC)
0.330	0.250	0.345	0.352	Contract Engineering & Technical. Support (FFRDC)
2.796	1.873	2.388	2.342	Total

JOINT STAFF
FY 2004/FY 2005 Biennial Budget Estimates
Research, Development, Test, and Evaluation (RDT&E), Defense-Wide

Exhibit R-2, RDT&E Budget Item Justification

Exhibit R-2a, RDT&E Project Justification		Date: February 2003
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	PROGRAM ELEMENT 0303149J	PROJECT NAME AND NUMBER C4IFTW (SATCOM Ops Analysis and Integration Tools)

B. Accomplishments/Planned Program:

FY 2002 Accomplishments: This phase of the J-SCAPE project expands upon the "proof-of-concept" system by improving operator usability and adding new satellite system analysis capabilities. This phase provides appropriate planning for, and development of, the J-SCAPE tool set prototype system. In addition, this phase implements J-SCAPE tool set prototype software in conformance with applicable Software Requisition Specifications (SRS) and Software Design Document (SDD) documentation. This encompasses implementation of standalone system operation, improved scenario-building and visualization features, and enhanced analysis capability for UHF Follow-on (UFO), Defense Satellite Communications System (DSCS), C/Ku, Ka, and Wide-Band Gapfiller (WBS) SATCOM systems.

FY 2003 Planned Program: Build on the FY02 prototyping efforts by developing and finalizing the design, code, and test, and delivering the analysis engine tool set software for the Global Broadcast Service (GBS), WGS, and the Advanced Wideband Systems (AWS).

FY 2004 Planned Program: Expand J-SCAPE to support analysis of additional SATCOM systems including, MILSTAR, Mobile User Objective System (MUOS), future EHF, future wideband, Laser satellite systems. Support scenario development through the definition and configuration of aggregate "force packages." Design and implement interfaces to communications planning and management systems to acquire near real-time configuration and status information, and import such information as satellite resource data. Participate in military exercises and operations to demonstrate capabilities of the J-SCAPE system to the warfighter.

C. Other Program Funding Summary: N/A.

D. Acquisition Strategy/ Schedule Profile: This program was a new start in FY 00.

	FY 2002	FY 2003	FY 2004	FY 2005
(Fiscal Qtr)	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Contract Award* -- Jul 97				
IOC **			X	
FOC (To be determined)				

* SAIC Inc., under competitively awarded delivery order type support contract awarded January 2003. Aerospace Corporation provides FFRDC support. After program definition, prototyping, risk-reduction phases, and engineering development (just prior to IOC), J-SCAPE will be openly competed based on fully defined requirement and a mature software design.

** J-SCAPE acquisition strategy is to follow a proof-of-concept phase with a series of prototypes to help further define the program, continue to capture and refine requirements and implement risk-reduction measures. IOC will be achieved following a final engineering development phase with formalized software design and planning on use of commercial software developmental tools (COTS), as much as feasible.